

REMARKS

The Official Action mailed May 7, 2002 has been received and its contents carefully noted. Filed concurrently herewith is a *Request for Continued Examination (RCE)*. Accordingly, Applicant respectfully submits that this response is being timely filed.

Claims 1-10 and 12-56 are pending in the present application, of which claims 1, 10, 19, 31 and 43 are independent. Claims 1, 10, 19-29, 31-41, and 43-52 have been amended herewith. Claims 1, 10, have been amended to recite that a side surface of the metallic film is covered with an insulating film along the length and width direction. Claims 19, 31, and 43 have been amended to recite that the lamination film has a taper shape. The remaining amendments are directed to minor typographical matters. For the reasons set forth in detail below, these claims are believed to be in condition for allowance.

The Official Action initially notes that the proposed drawing corrections filed on February 15, 2002 have been approved, but further states that a proper drawing correction or corrected drawings are required in reply to the Official Action. Applicant is unaware of any further required drawing corrections, however, Applicant will gladly correct any further formalities as required by the Examiner. At this time, no further response is understood to be required.

Paragraph 1 of the Official Action notes minor typographical errors introduced to the specification by the Amendment filed on February 15, 2002. As requested, Applicant has amended the specification to correct these typographical errors and reconsideration is requested.

Paragraph 3 of the Official Action rejects claims 2, 22, 34 and 45 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in such a way as to enable one skilled in the art to which it pertains. The Official Action asserts that the last sentence of page 3 of the specification indicates that resin should not be used as the protecting film since it will not protect against moisture. Applicant continues to disagree. The last sentence of page 3 of the specification merely states that the prior art structure described in that paragraph results in a problem in protecting against moisture. This sentence does not indicate specifically that resin is an unsatisfactory


insulating material. Furthermore, this statement cannot be read alone and must be read in the context of the remained of the specification that supports the use of a resin as the protecting film of the present invention. Reconsideration is requested.

Paragraphs 5-7 of the Official Action reject claims 1-5, 7, 10, 12-16, 19-25, 27, 30-37, 39, 42, and 54-55 as being anticipated by one or more of U.S. Patent 6,169,593 to Kanaya et al.; U.S. Patent 5,636,329 to Sukegawa et al. and U.S. Patent 5,608,559 to Inada et al. Paragraphs 9-13 of the Official Action reject claims 1-7, 10, 12-15, 19-26, 31-38, 43-50 and 53-56 are as obvious based on one or more of Kanaya, JP 8-234212 to Hioki, Sukegawa, and U.S. Patent 6,215,077 to Utsumi.

In each case, it is respectfully submitted that the prior art of record, whether taken alone or in combination, fails to disclose or suggest each and every feature now recited in the claims. As noted above, all independent claims now recite either that a side surface of a metallic film of a lamination film (i.e. connecting wiring) is covered with an insulating film along the length direction (as shown Fig. 11A and Fig. 11C) and the width direction (as shown Fig. 11B) of the lamination film; or that the lamination film (i.e. connecting wiring) has a taper shape as described in Embodiment 3 (Figs. 20 & 21). Since the prior art of record fails to disclose or suggest these features of the present invention, it is submitted that the claims cannot be anticipated obvious based thereon and favorable reconsideration is requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please amend the specification as follows:

On Page 27, Paragraph 2

Thereafter, a resist mask having a predetermined pattern is formed by using a photomask PM5 (Fig. 6A). Contact holes reaching the source or drain regions of the respective island-like semiconductor films are formed in the insulating films 138 and 139. Further, insulating films 138 and 139 are removed from the terminal section 182. The contact holes are formed by dry etching. In this case, a mixed gas of $[CF_{49} O_2]$ CF_4 , O_2 and He is used as the etching gas. The interlayer insulating film 139 formed of the organic resin material is first etched. Then, the etching gas is switched to $[CF_{49} O_2]$ CF_4 and O_2 , and the protective insulating film 138 is etched. To improve the selection ratio with the island-like semiconductor films, the etching gas is switched further to CHF_3 and the gate insulating film is etched. In this way, the contact holes can be formed satisfactorily.



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IN THE CLAIMS:

Please amend claims 1, 10, 19-29, 31-41, and 43-52 as follows:

1. (Amended) A contact structure for electrically connecting a connecting wiring over a substrate to a wiring over another substrate by an anisotropic conductive film,

wherein said connecting wiring is a lamination film comprising a metallic film and a transparent conductive film in contact with said metallic film, and

wherein a side surface of said metallic film is covered with an [protecting] insulating film along the length direction and the width direction of said lamination film.

10. (Amended) A contact structure for electrically connecting a connecting wiring over a substrate to a wiring over another substrate by at least one grain plated with at least one of gold and chromium in an anisotropic conductive film,

wherein said connecting wiring is a lamination film comprising a metallic film and a transparent conductive film in contact with said metallic film,

wherein a side surface of said metallic film is covered with an insulating film along the length direction and the width direction of said lamination film, and

wherein said metallic film is not in contact with said grain in said anisotropic conductive film.

19. (Amended) A semiconductor device comprising:
a circuit comprising a thin film transistor over a substrate; and
a connecting wiring over said substrate for connecting said circuit to another circuit,

wherein said connecting wiring is a lamination film comprising a metallic film and a transparent conductive film in contact with said metallic film, [and]

wherein a side surface of said metallic film is covered with an insulating film along the length direction of said lamination film, and

wherein said lamination film has a taper shape.

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20. (Amended) A semiconductor device of [claims] claim 19 wherein the protecting film is formed of the same materials as that of an insulating film between a gate wiring and a source wiring of the thin film transistor.

21. (Amended) A semiconductor device of [claims] claim 19 wherein the connecting wiring is electrically connected to a wiring of [said] another substrate via an anisotropic conductive film.

22. (Amended) A semiconductor device of [claims] claim 19 wherein the protecting film is a resin film.

23. (Amended) A semiconductor device of [claims] claim 19 wherein a thickness of the metallic film is between 100 nm and 1 μm .

24. (Amended) A semiconductor device of [claims] claim 19 wherein the metallic film comprises a metallic layer having Al as its principal constituent, or an alloy layer containing Al.

25. (Amended) A semiconductor device of [claims] claim 19 wherein the metallic film comprises a metallic layer having W as its principal constituent, or an alloy layer containing W.

26. (Amended) A semiconductor device of [claims] claim 19 wherein the metallic film is a lamination film formed of a W layer, and an alloy layer containing W and N.

27. (Amended) A semiconductor device of [claims] claim 19 wherein a thickness of the transparent conductive film is between 50 nm and 0.5 μm .

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28. (Amended) A semiconductor device of [claims] claim 19 wherein the transparent conductive film is an alloy film containing zinc oxide.

29. (Amended) A semiconductor device of [claims] claim 19 wherein the transparent conductive film is an alloy film containing zinc oxide and indium oxide.

31. (Amended) A semiconductor device comprising:
a first substrate comprising a circuit comprising a thin film transistor;
a second substrate opposing said first substrate;
a connecting wiring comprising a metallic film and a transparent conductive film in contact with said metallic film for connecting said circuit to another circuit; and
an insulating film in contact with a side surface of said metallic film,
wherein said connecting wiring and said [protecting] insulating film are formed over said first substrate, [and]
wherein said [protecting] insulating film is formed along with the length direction of said lamination film, and
wherein said connecting wiring has a taper shape.

32. (Amended) A semiconductor device of [claims] claim 31 wherein the protecting film is formed of the same materials as that of an insulating film between a gate wiring and a source wiring of the thin film transistor.

33. (Amended) A semiconductor device of [claims] claim 31 wherein said connecting wiring is electrically connected to a wiring of [said second] a third substrate via an anisotropic conductive film.

34. (Amended) A semiconductor device of [claims] claim 31 wherein the protecting film is a resin film.

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35. (Amended) A semiconductor device of [claims] claim 31 wherein a thickness of the metallic film is between 100 nm and 1 μ m.

36. (Amended) A semiconductor device of [claims] claim 31 wherein the metallic film comprises a metallic layer having Al as its principal constituent, or an alloy layer containing Al.

37. (Amended) A semiconductor device of [claims] claim 31 wherein the metallic film comprises a metallic layer having W as its principal constituent, or an alloy layer containing W.

38. (Amended) A semiconductor device of [claims] claim 31 wherein the metallic film is a lamination film formed of a W layer, and an alloy layer containing W and N.

39. (Amended) A semiconductor device of [claims] claim 31 wherein a thickness of the transparent conductive film is between 50 nm and 0.5 μ m.

40. (Amended) A semiconductor device of [claims] claim 31 wherein the transparent conductive film is an alloy film containing zinc oxide.

41. (Amended) A semiconductor device of [claims] claim 31 wherein the transparent conductive film is an alloy film containing zinc oxide and indium oxide.

43. (Amended) A semiconductor device comprising:
a first substrate comprising a circuit comprising a thin film transistor;
a second substrate opposing said first substrate;

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a connecting wiring comprising a metallic film and a transparent conductive film in contact with said metallic film for connecting said circuit to another circuit;

a column-shape spacer formed over said thin film transistor for maintaining a space between said first substrate and said second substrate; and

a protecting film in contact with a side surface of said metallic film comprising the same material as that of the column-shape spacer,

wherein said connecting wiring, said column spacer, and said protecting film are formed over said first substrate, [and]

wherein said protecting film is formed along with the length direction of said lamination film, and

wherein said connecting wiring has a taper shape.

44. (Amended) A semiconductor device of [claims] claim 43 wherein said connecting wiring is electrically connected to a wiring of [said second] a third substrate via an anisotropic conductive film.

45. (Amended) A semiconductor device of [claims] claim 43 wherein the protecting film is a resin film.

46. (Amended) A semiconductor device of [claims] claim 43 wherein a thickness of the metallic film is between 100 nm and 1 μ m.

47. (Amended) A semiconductor device of [claims] claim 43 wherein the metallic film comprises a metallic layer having Al as its principal constituent, or an alloy layer containing Al.

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48. (Amended) A semiconductor device of [claims] claim 43 wherein the metallic film comprises a metallic layer having W as its principal constituent, or an alloy layer containing W.

49. (Amended) A semiconductor device of [claims] claim 43 wherein the metallic film is a lamination film formed of a W layer, and an alloy layer containing W and N.

50. (Amended) A semiconductor device of [claims] claim 43 wherein a thickness of the transparent conductive film is between 50 nm and 0.5 μm .

51. (Amended) A semiconductor device of [claims] claim 43 wherein the transparent conductive film is an alloy film containing zinc oxide.

52. (Amended) A semiconductor device of [claims] claim 43 wherein the transparent conductive film is an alloy film containing zinc oxide and indium oxide.